HUAWEI

FusionSolar®
Residential & Commercial Smart PV Solution

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HUAWEI

About Huawei

Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. With integrated solutions across four key domains – telecom networks, IT, smart devices, and cloud services – we are committed to bringing digital to every person, home and organization for a fully connected, intelligent world. Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. Through open collaboration with ecosystem partners, we create lasting value for our customers, working to empower people, enrich home life, and inspire innovation in organizations of all shapes and sizes. At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward.

Employees
194,000+

R&D Personnel
96,000+

Countries
170+

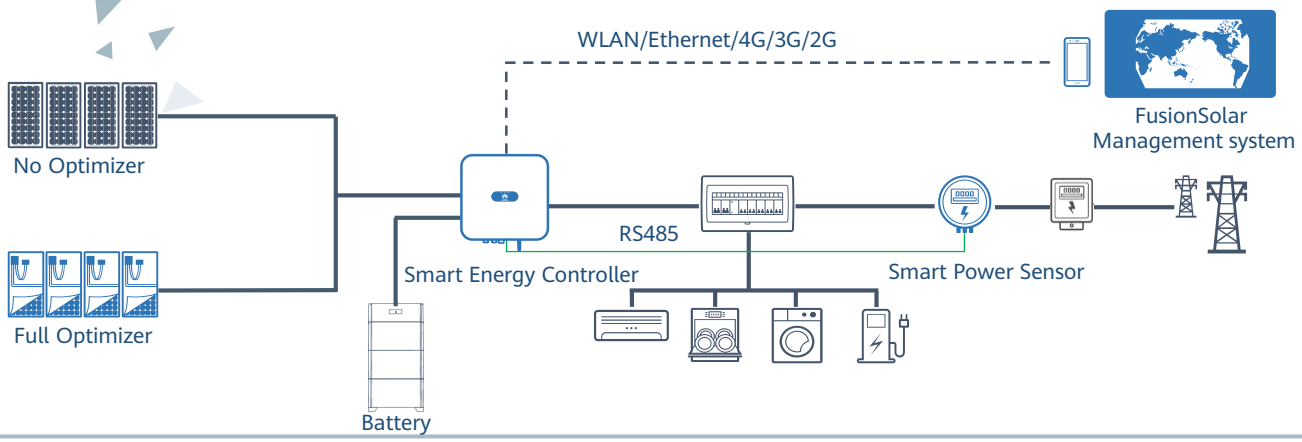
Interbrand's Top 100 Best Global Brands
74

Fortune Global 500
49

Research institutes /labs/centers
14

130GW+
Accumulated global shipment at the end of 2019

Residential PV Solution



Optimal Electricity Cost

Up to 30% More Energy by Optimizers

2x POWER Battery Ready for More Energy Consumption

Active Safety

AI Powered Active Arcing Protection

Pinpoint Arc Fault Positioning

Better Experience

One-Fits-All Solution, Easier Business

Module Auto-Mapping within 5 sec

Smart Energy Controller

Active Safety

AI Powered
Active Arcing Protection

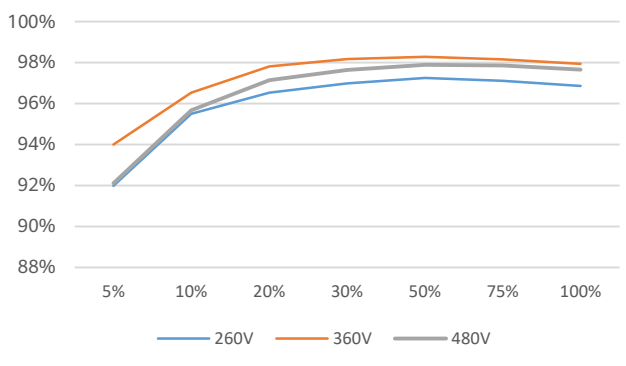
Higher Yields

Up to 30% More
Energy with Optimizer

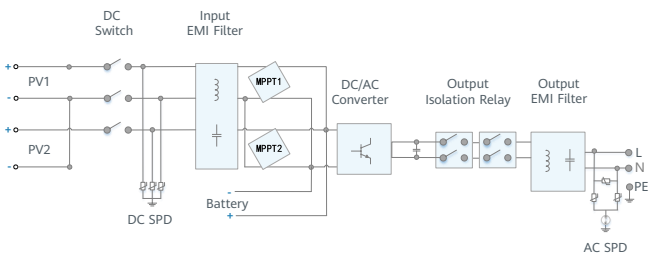
2x POWER Battery Ready

5KW AC Output plus
5KW Battery Charge

Efficiency Curve



Circuit Diagram



SUN2000-2/3/3.68/4/4.6/5/6KTL-L1

Technical Specification

Technical Specification	SUN2000 -2KTL-L1	SUN2000 -3KTL-L1	SUN2000 -3.68KTL-L1	SUN2000 -4KTL-L1	SUN2000 -4.6KTL-L1	SUN2000 -5KTL-L1	SUN2000 -6KTL-L1[1]
Efficiency							
Max. efficiency	98.2 %	98.3 %	98.4 %	98.4 %	98.4 %	98.4 %	98.4 %
European weighted efficiency	96.7 %	97.3 %	97.3 %	97.5 %	97.7 %	97.8 %	97.8 %
Input (PV)							
Recommended max. PV power [2]	3,000 Wp	4,500 Wp	5,520 Wp	6,000 Wp	6,900 Wp	7,500 Wp	9,000 Wp
Max. input voltage	600 V [3]						
Start-up voltage	100 V						
MPPT operating voltage range	90 V – 560 V [3]						
Rated input voltage	360 V						
Max. input current per MPPT	12.5 A						
Max. short-circuit current	18 A						
Number of MPP trackers	2						
Max. number of inputs	2						
Input (DC Battery)							
Compatible Battery	LG Chem RESU 7H_R / 10H_R						
Operating voltage range	350 ~ 450 Vdc						
Max operating current	10 A @7H_R / 15 A @10H_R						
Max charge power	3,500 W @7H_R / 5,000 W @10H_R						
Max discharge Power @7H_R	2,200 W	3,300 W	3,500 W	3,500 W	3,500 W	3,500 W	3,500 W
Max discharge Power @10H_R	2,200 W	3,300 W	3,680 W	4,400 W	4,600 W	5,000 W	5,000 W
Compatible Battery	HUAWEI Smart ESS Battery 5kWh – 30kWh [1]						
Operating voltage range	350 ~ 560 Vdc						
Max operating current	15 A						
Max charge Power	5,000 W [4]						
Max discharge Power	2,200 W	3,300 W	3,680 W	4,400 W	4,600 W	5,000 W	5,000 W
Output							
Grid connection	Single phase						
Rated output power	2,000 W	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W [5]	6,000 W
Max. apparent power	2,200 VA	3,300 VA	3,680 VA	4,400 VA	5,000 VA [6]	5,500 VA [7]	6,000 VA
Rated output voltage	220 Vac / 230 Vac / 240 Vac						
Rated AC grid frequency	50 Hz / 60 Hz						
Max. output current	10 A	15 A	16 A	20 A	23 A [8]	25 A [8]	27.3 A
Adjustable power factor	0.8 leading ... 0.8 lagging						
Max. total harmonic distortion	≤ 3 %						
Backup power output	Yes (via Backup Box-B0 [1])						
Protection & Feature							
Anti-Islanding protection	Yes						
DC reverse polarity protection	Yes						
Insulation monitoring	Yes						
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11						
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11						
Residual current monitoring	Yes						
AC overcurrent protection	Yes						
AC short-circuit protection	Yes						
AC overvoltage protection	Yes						
Over-heat protection	Yes						
Arc fault protection	Yes						
Battery reverse charging from grid	Yes						
General Data							
Operating temperature range	-25 ~ +60 °C						
Relative operating humidity	0 %RH ~ 100 %RH						
Operating altitude	0 ~ 4,000 m (Derating above 2,000 m)						
Cooling	Natural convection						
Display	LED indicators; integrated WLAN + FusionSolar APP						
Communication	RS485, WLAN via inverter built-in WLAN module Ethernet via Smart Dongle-WLAN-FE (Optional); 4G / 3G / 2G via Smart Dongle-4G (Optional)						
Weight (incl. mounting bracket)	12.0 kg (26.5 lb)						
Dimension (incl. mounting bracket)	365mm * 365mm * 156 mm (14.4 x 14.4 x 6.1 inch)						
Degree of protection	IP65						
Optimizer Compatibility							
DC MBUS compatible optimizer	SUN2000-450W-P						
Standard Compliance (more available upon request)							
Safety	EN/IEC 62109-1, EN/IEC 62109-2						
Grid connection standards	G98, G99, EN 50549-1, CEI 0-21, VDE-AR-N-4105, AS 4777.2, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, IEC61727, IEC62116, IEC60068, IEC61683						

*1 Available in 2020 Q3.
*2 Inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.
*3 The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.
*4 2,500 W @ 5kWh HUAWEI ESS battery
*5 AS4777.2: 4,991W. *6. VDE-AR-N 4105: 4,600VA / AS4777.2: 4,999VA. *7. AS4777.2: 4,999VA / C10/11:5,000VA *8. AS4777.2: 21.7A.

Smart PV Optimizer

One-Fits-All Optimizer
Easier Business

<1.5 min Pairing with Inverter

<5s Module Auto-Mapping

Arc Fault Pinpoint
Positioning

Technical Specification	SUN2000-450W-P
	Input
Rated Input DC Power [1]	450 W
Absolute maximum input voltage	80 V
MPPT operating voltage range	8 - 80 V
Maximum Short Circuit Current (Isc)	13 A
Max. efficiency	99.5 %
Weighted efficiency	99.0 %
Overvoltage category	II
	Output
Max. output voltage	80 V
Max. output current	15 A
Output bypass [2]	Yes
Shutdown output voltage per optimizer [3]	0 V
Shutdown output impedance per optimizer	1k ohm ± 10 %
	Standard Compliance
Safety	IEC62109-1 (class II safety)
RoHS	Yes
	General Data
Dimension (W x H x D)	71 x 138 x 25 mm (2.8 x 5.4 x 1.0 inch)
Weight (including cables)	0.55 kg (1.2 lb.)
Installation part (optional)	Grounding Plate, Grounding Lug, PV Module Frame Plate
Input connector	Staubli MC4
Output connector	Staubli MC4
Output wire length	1.2 m (3.9 ft.) [4]
Operating temperature / humidity range	-40 ℃ ~ 85 ℃ [5] / 0 %RH ~ 100 %RH
Degree of protection	IP68
Compatible product	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-12/15/17/20KTL-M2

Long String Design (Full Optimizer)	SUN2000-2-6KTL-L1	SUN2000-3-10KTL-M1	SUN2000-12-20KTL-M2
Minimum optimizer number per string	4	6	6
Maximum optimizer number per string	25	50	50
Maximum DC power per string	5,000 W	10,000 W	10,000 W

*1 Rated power of the module at STC shall not exceed "Rated Input DC Power" of power optimizer. Modules with power up to +5% power tolerance are acceptable.
*2 Power optimizer is bypassed in the string connected to an operating inverter when it fails to work
*3 Power optimizer output 0Vdc when disconnecting to the inverter or inverter is shutdown.
*4 Fits PV module in landscape and portrait installation.
*5 Full power capability refers to online smart design tool.

Smart Energy Controller

Active Safety

AI Powered
Active Arcing Protection

Higher Yields

Up to 30% More Energy
with Optimizer

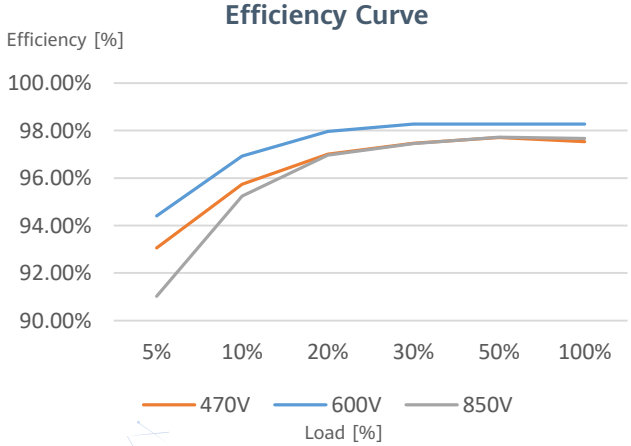
Battery Ready

Plug & Play battery interface [1]

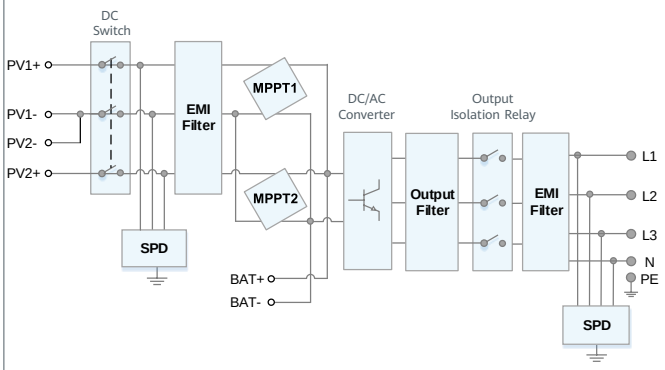
Flexible Communication

WLAN, Fast Ethernet, 4G
Communication Supported

Efficiency Curve



Circuit Diagram



SUN2000-5/10KTL-M1

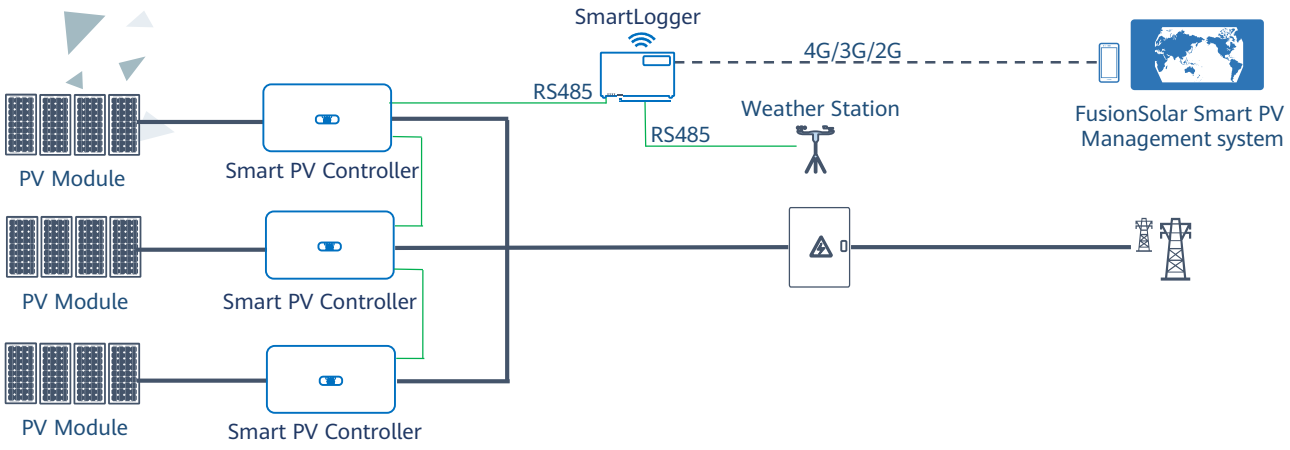
*1. Will be compatible with HUAWEI smart string ESS in Q1, 2021

Technical Specification

Technical Specification	SUN2000-5KTL-M1	SUN2000-10KTL-M1
Efficiency		
Max. efficiency	98.4%	98.6%
European weighted efficiency	97.5%	98.1%
Input (PV)		
Recommended max. PV power [1]	7,500 Wp	15,000 Wp
Max. input voltage [2]	1,100 V	
Operating voltage range [3]	140 V ~ 980 V	
Start-up voltage	200 V	
Rated input voltage	600 V	
Max. input current per MPPT	11 A	
Max. short-circuit current	15 A	
Number of MPP trackers	2	
Max. input number per MPP tracker	1	
Input (DC Battery)		
Compatible Battery	HUAWEI Smart String ESS 5kWh – 30kWh	
Operating voltage range	600 V ~ 980 V	
Max operating current	16A	
Max charge Power	10,000 W	
Max discharge Power	5,500 W	10,000 W
Output (On Grid)		
Grid connection	Three-phase	
Rated output power	5,000 W	10,000 W
Max. apparent power	5,500 VA	11,000 VA [4]
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	8.5 A	16.9 A
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Output (Backup Power via Backup Box-B1)		
Maximum apparent power	3,300 VA	
Rated output voltage	220 V / 230 V	
Maximum output current	15 A	
Power factor range	0.8 leading ... 0.8 lagging	
Features & Protections		
Input-side disconnection device	Yes	
Anti-Islanding protection	Yes	
DC reverse polarity protection	Yes	
Insulation monitoring	Yes	
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
Residual current monitoring	Yes	
AC overcurrent protection	Yes	
AC short-circuit protection	Yes	
AC overvoltage protection	Yes	
Arc fault protection	Yes	
Ripple receiver control	Yes	
Integrated PID recovery [5]	Yes	
Battery reverse charging from grid	Yes	
General Data		
Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)	
Relative operating humidity	0 %RH ~ 100 %RH	
Operating altitude	0 ~ 4,000 m (13,123 ft.) (Derating above 2000 m)	
Cooling	Natural convection	
Display	LED Indicators; Integrated WLAN + FusionSolar App	
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G / 3G / 2G via Smart Dongle-4G (Optional)	
Weight (incl. mounting bracket)	17 kg (37.5 lb)	
Dimension (incl. mounting bracket)	525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch)	
Degree of protection	IP65	
Optimizer Compatibility		
DC MBUS compatible optimizer	SUN2000-450W-P	
Standard Compliance (more available upon request)		
Certificate	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116	
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA 2.0, IEC60068, IEC61683	

*1 Inverter max input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.
*2 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*3 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
*4 C10 / 11: 10,000 VA
*5 SUN2000-3~10KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

Commercial PV Solution



Active Safety	Higher Yields	Maintenance Free
AI Powered Active Arcing Protection	2 Strings per MPPT, More Energy Yields	No Fuse & Other Quick-wear Parts, Inverter Touch Free
C&I Tailored Enhanced Arcing Protection	Built-in PID Recovery, Secure Better Module Performance	Online Smart I-V Curve Diagnosis, Module Touch Free

Smart PV Controller

inter solar award 2019 WINNER

Active Safety

AI Powered Arcing Protection

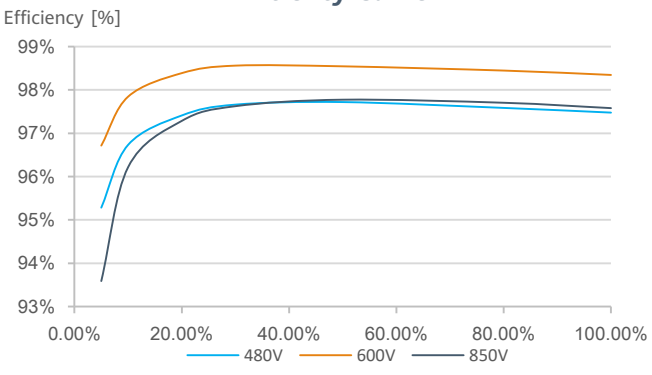
Higher Yields

Up to 30% More Energy with Optimizer [1]

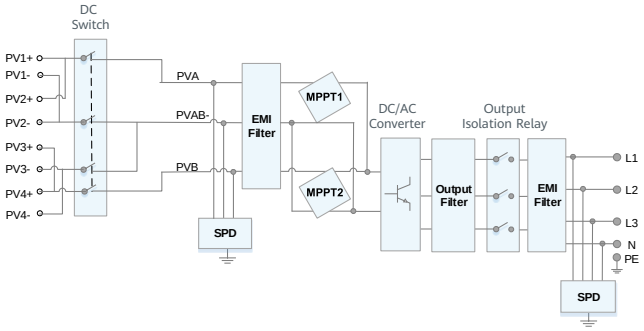
Flexible Communication

WLAN, Fast Ethernet, 4G Communication Supported

Efficiency Curve



Circuit Diagram



SUN2000-15/20KTL-M0/M2

*1 Only applicable to SUN2000-12/15/17/20KTL-M2 inverter.

Technical Specification

Technical Specification	SUN2000-15KTL-M0	SUN2000-20KTL-M0
Efficiency		
Max. efficiency	98.65%	98.65%
European weighted efficiency	98.30%	98.30%
Input		
Recommended max. PV power	29,760 Wp	29,760 Wp
Max. input voltage [1]	1,080 V	
Operating voltage range [2]	160 V ~ 950 V	
Start voltage	200 V	
Rated input voltage	600 V	
Max. input current per MPPT	22 A	
Max. short-circuit current	30 A	
Number of MPP trackers	2	
Max. number of inputs	4	
Output		
Grid connection	Three phase	
Rated output power	15,000 W	20,000 W
Max. apparent power	16,500 VA	22,000 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W + N+PE	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	25.2 A	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Features & Protections		
Input-side disconnection device	Yes	
Anti-islanding protection	Yes	
AC over-current protection	Yes	
AC short-circuit protection	Yes	
AC over-voltage protection	Yes	
DC reverse-polarity protection	Yes	
DC surge protection	Yes	
AC surge protection [3]	Yes	
Residual current monitoring unit	Yes	
Arc fault protection	Yes	
Ripple receiver control	Yes	
General Data		
Operation temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F) (Derating above 45 °C @ Rated output power)	
Relative humidity	0 % RH ~ 100% RH	
Max. operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 2000 m)	
Cooling	Natural Convection	
Display	LED Indicators	
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)	
Weight (with mounting plate)	25 kg	
Dimensions (W x H x D) (incl. mounting plate)	525 x 470 x 262 mm (20.7 x 18.5 x 10.3 inch)	
Degree of protection	IP65	
Nighttime Power Consumption	< 5.5 W	
Standard Compliance (more available upon request)		
Safety	EN/IEC 62109-1, EN/IEC 62109-2	
Grid connection standards	G98, G99, EN 50438, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, RD 661, PO 12.3, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA 2.0	

*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*2 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
*3 Compatible TYPE II protection class according to EN/IEC 61643-11

Technical Specification

Technical Specification	SUN2000-15KTL-M2	SUN2000-20KTL-M2
Efficiency		
Max. efficiency	98.65%	98.65%
European weighted efficiency	98.30%	98.30%
Input		
Recommended max. PV power [1]	22,500 Wp	30,000 Wp
Max. input voltage [2]	1,080 V	
Operating voltage range [3]	160 V ~ 950 V	
Start-up voltage	200 V	
Rated input voltage	600 V	
Max. input current per MPPT	22 A	
Max. short-circuit current	30 A	
Number of MPP trackers	2	
Max. number of inputs	4	
Output		
Grid connection	Three phase	
Rated output power	15,000 W	20,000 W
Max. apparent power	16,500 VA	22,000 VA
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W + N + PE	
Rated AC grid frequency	50 Hz / 60 Hz	
Max. output current	25.2 A	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging	
Max. total harmonic distortion	≤ 3 %	
Features & Protections		
Input-side disconnection device	Yes	
Anti-islanding protection	Yes	
AC over-current protection	Yes	
AC short-circuit protection	Yes	
AC over-voltage protection	Yes	
DC reverse-polarity protection	Yes	
DC surge protection	TYPE II	
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11	
Residual current monitoring unit	Yes	
Arc fault protection	Yes	
Ripple receiver control	Yes	
Integrated PID recovery [4]	Yes	
General Data		
Operation temperature range	-25 ~ +60 °C (-13 °F ~ 140 °F)	
Relative humidity	0 % RH ~ 100% RH	
Max. operating altitude	0 ~ 4,000 m (13,123 ft.) (Derating above 2000 m)	
Cooling	Natural Convection	
Display	LED Indicators; Integrated WLAN + FusionSolar App	
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)	
Weight (with mounting plate)	25 kg	
Dimensions (W x H x D) (incl. mounting plate)	525 x 470 x 262 mm (20.7 x 18.5 x 10.3 inch)	
Degree of protection	IP65	
Optimizer Compatibility		
DC MBUS compatible optimizer	SUN2000-450W-P	
Standard Compliance (more available upon request)		
Safety	EN/IEC 62109-1, EN/IEC 62109-2	
Grid connection standards	G98, G99, EN 50549, CEI 0-21, CEI 0-16, VDE-AR-N-4105, VDE-AR-N-4110, AS 4777.2, C10/11, ABNT, VFR 2019, RD 1699, RD 661, PO 12.3, TOR D4, IEC61727, IEC62116, DEWA, , IEC60068, IEC61683	

*1 Inverter max input PV power is 40,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.
*2 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*3 Any DC input voltage beyond the operating voltage range may result in inverter improper operating.
*4 SUN2000-12~20KTL-M2 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly)

Smart PV Controller

Smart I-V Curve Diagnosis supported

Max. efficiency 98.7%

Fuse free design

Protection degree of IP65

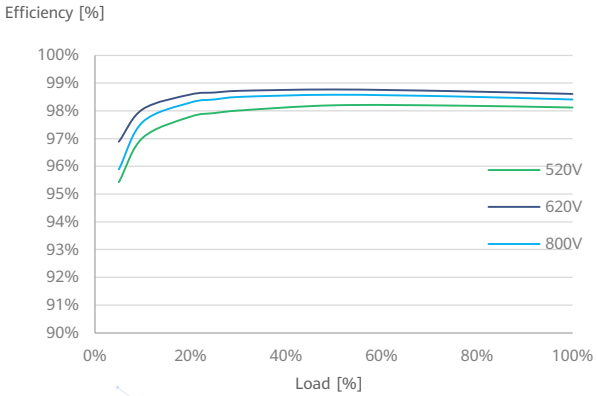
12 strings intelligent monitoring and fast trouble-shooting

Type II surge arresters for both DC and AC

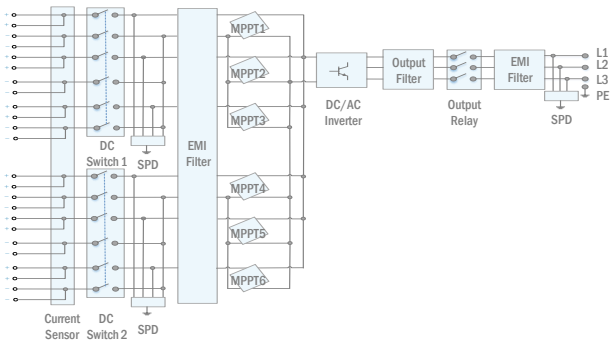
Residual Current Monitoring Unit (RCMU) integrated

MBUS supported

Efficiency Curve



Circuit Diagram



SUN2000-50KTL-M0

Technical Specification

Technical Specification	SUN2000-50KTL-M0
Efficiency	
Max. Efficiency	98.7%
European Efficiency	98.5%
Input	
Max. Input Voltage	1,100 V
Max. Current per MPPT	22 A
Max. Short Circuit Current per MPPT	30 A
Start Voltage	200 V
MPPT Operating Voltage Range	200 V ~ 1,000 V
Rated Input Voltage	600 V
Number of Inputs	12
Number of MPP Trackers	6
Output	
Rated AC Active Power	50,000 W
Max. AC Apparent Power	55,000 VA
Max. AC Active Power (cosϕ=1)	55,000 W
Rated Output Voltage	220 V / 230 V, default 3W + N + PE; 380 V / 400 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Rated Output Current	76 A @380 V / 72.2 A @400 V
Max. Output Current	83.6 A @380 V / 79.4 A @400 V
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	<3%
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, Bluetooth + APP
RS485	Yes
USB	Yes
Monitoring BUS (MBUS)	Yes
General Data	
Dimensions (W x H x D)	1,075 x 555 x 300 mm (42.3 x 21.9 x 11.8 inch)
Weight (with mounting plate)	74 kg (163.1 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Natural Convection
Max. Operating Altitude	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Amphenol Helios H4
AC Connector	Cable Gland + OT Terminal
Protection Degree	IP65
Topology	Transformerless
Nighttime Power Consumption	< 2 W
Standard Compliance (more available upon request)	
Certificate	EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 62910, IEC 60068, IEC 61683
Grid Code	IEC 61727, G59/3, AS/NZS 4777.2, EN50438, VDE4105/0126

Smart Dongle-WLAN-FE

Smart

WLAN & Fast Ethernet (FE) communication
Support 3rd-party monitoring system [1]

Simple

Plug & Play
Support max. 10 devices

Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-05
General Data	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Ethernet Interface	10/100M Ethernet
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	146 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	2.5 W
Operation Mode	STA
Encryption Algorithm	Encryption Mechanism: WPA/WPA2 Encryption: TKIP/CCMP/AES
Wireless Parameter	
Supported standards & frequencies	802.11b/g/n（2.412G—2.484G）
Environment	
Operating temperature range	-30 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40℃ to +70℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13,123 ft.)
Standard Compliance (more available upon request)	
Certificate	SRRC, CE, RCM
Inverter Compatibility	
Inverter model	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0

*1: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.

Smart Dongle-4G

Smart

2G, 3G, 4G communication [1]
Support 3rd-party monitoring system [2]

Simple

Plug & Play
Support max. 10 devices

Reliable

IP65
Support auto reconnection

Technical Specification	SDongleA-03-EU
General Data	
Max. Devices Supported	10
Max. Inverters Supported	10
Connection interface	USB
Installation	Plug-and-play
Indicator	LED Indicator
Dimensions (W * H * D)	130 x 48 x 33 mm (5.1 x 1.9 x 1.3 inch)
Weight	90 g (0.2 lb.)
Degree of protection	IP65
Power consumption (typical)	3.5 W
Wireless Parameter	
Sim card type	mini-sim (15 mm*25 mm)
Supported standards & frequencies	4G: FDD-LTE / TDD-LTE 3G: WCDMA / HSDPA / HSUPA / HSPA+ 2G: GSM / GPRS / EDGE [3]
Environment	
Operating temperature range	-30 ℃ to +65 ℃ (-22 ℉ to 149 ℉)
Relative humidity range	5 - 95% RH
Storage temperature range	-40 ℃ to +70 ℃ (-40 ℉ to 158 ℉)
Max. operating altitude	4,000 m (13,123 ft.)
Standard Compliance (more available upon request)	
Certificate	CE, Type Approval for Thailand, MIC
Inverter Compatibility	
Inverter model	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1 SUN2000-3/4/5/6/8/10KTL-M0 SUN2000-12/15/17/20KTL-M0 SUN2000-60KTL-M0 SUN2000-100KTL-M1

1: To ensure stable data transmission, Huawei suggests 4G dongle to be installed in areas with stable mobile signal (2G signal ≥4 bars, 3G/4G signal ≥3 bars).
2: 3rd-party management system shall match the communication protocol with Huawei Smart Dongle.
3. For recommended carriers list and details on supported frequencies, please contact local distributors.

Smart Power Sensor

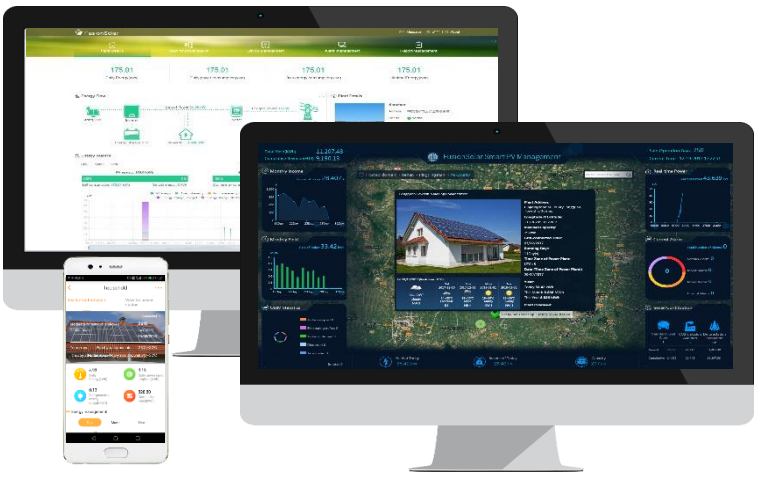
Accurate
Class 1 measurement accuracy

Simple & Easy
LCD display, easy to set and check

Energy Efficient
Overall power consumption ≤ 1 W

Technical Specification	DDSU666-H	DTSU666-H 250A/50mA
General Data		
Dimension (H x W x D)	100 x 36 x 65.5 mm (3.9 x 1.4 x 2.6 inch)	100 x 72 x 65.5 mm (3.9 x 2.8 x 2.6 inch)
Mounting type	DIN35 Rail	
Weight (including cables)	1.2 kg (2.6 lb)	1.5 kg (3.3 lb)
Power Supply		
Power grid type	1P2W	3P4W
Input voltage (phase voltage)	176 Vac ~ 288 Vac	
Power consumption	≤ 0.8 W	≤ 1 W
Measurement Range		
Line voltage	/	304 Vac ~ 499 Vac
Phase voltage	176 Vac ~ 288 Vac	
Current	0 ~ 100 A	0 ~ 250 A
Measurement Accuracy		
Voltage	±0.5 %	
Current / Power / Energy	±1 %	
Frequency	±0.01 Hz	
Communication		
Interface	RS485	
Baud rate	9,600 bps	
Communication protocol	Modbus-RTU	
Environment		
Operating temperature range	-25 ℃ ~ 60 ℃	
Storage temperature range	-40 ℃ ~ 70 ℃	
Operating humidity	5 %RH ~ 95 %RH (non-condensing)	
Others		
Accessories	RS485 Cable (10 m / 33 ft.) 1 CT 100 A/40 mA (5 m/16.4 ft.) 	3 CT 250 A/50 mA (5 m/16.4 ft.) 

FusionSolar Smart PV Management System



Simple & Swift

- Simple commissioning by APP
- Auto-detection of system equipment
- Registering your plant by scanning any device

Convenient & Reliable

- Energy flow illustration
- Real-time data at anytime from anywhere
- Performance data back-up

Improved O&M Experience

- Physical & logical module layout
- Module-level performance management*
- Smart I-V Diagnosis

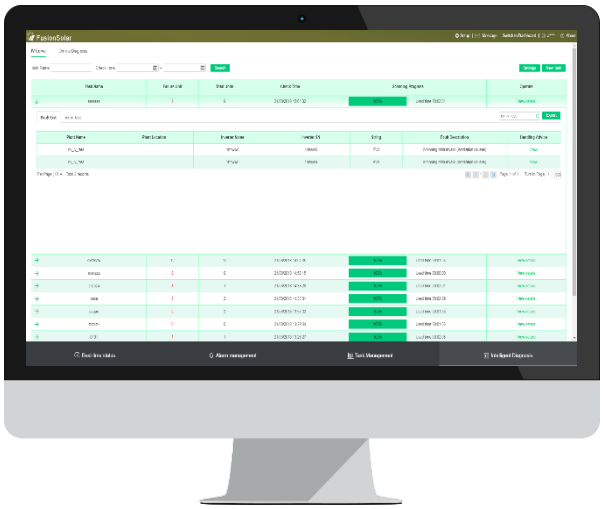
*Full optimizer solution with Smart PV Safety Box required

	Feature List	WEB	APP
Basic Feature	Swift Installation & Registration	●	●
	Data Collection	●	
	Dashboard	●	●
	Energy Flow	●	●
	Energy Generation & Consumption	●	●
	Device Management	●	●
	Report Management	●	●
	Alarm Management	●	●
	System Configuration	●	
Advanced Feature	Intelligent O&M	○	
	Mobile O&M	○	○
	Proactive Diagnosis	○	○
	Smart I-V Curve Diagnosis	○	○

● Basic ○ Optional

Smart I-V Curve Diagnosis

Smart I-V Curve Diagnosis is able to carry out online I-V curve analysis on entire strings with advanced diagnosis algorithm. The scanning would help to find out and identify the strings with low performance or faults, which would help to achieve proactive maintenance, higher O&M efficiency and lower operation cost.



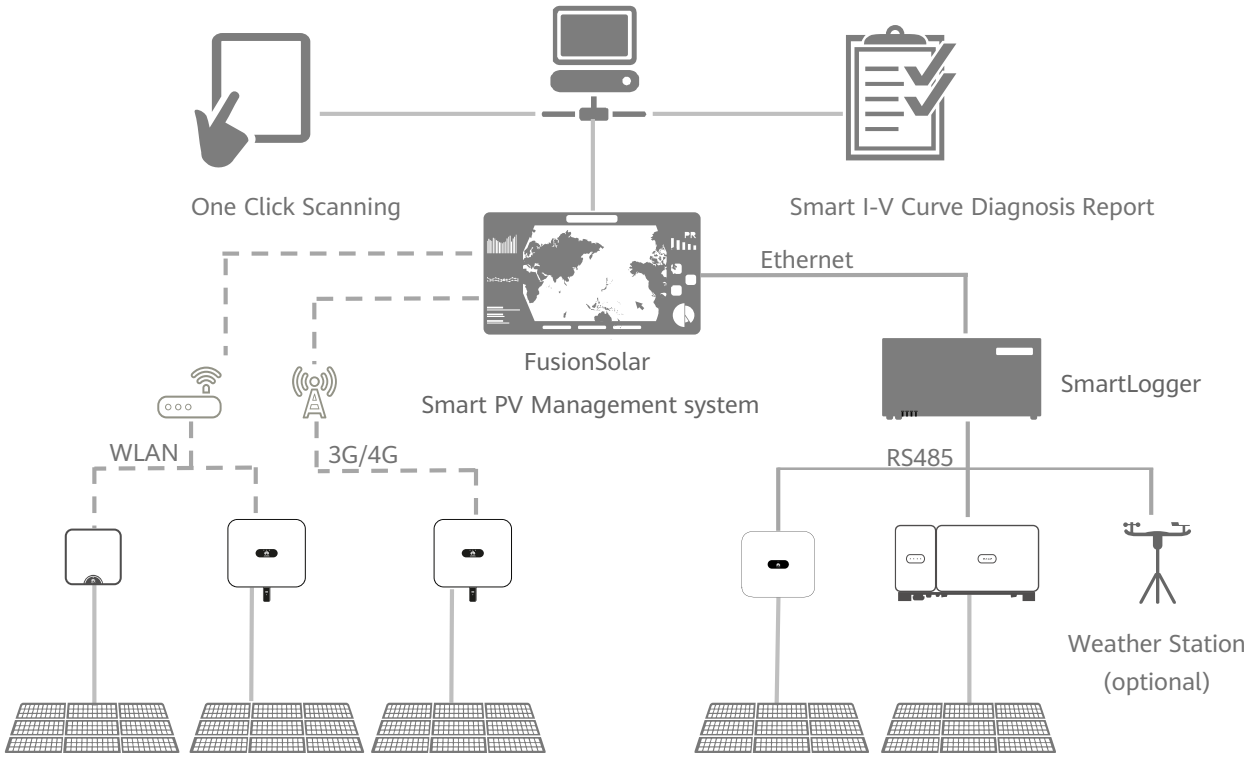
Smart

- Support plant-level, array-level and inverter-level analysis and diagnosis
- Automatically identify different failure types and provide recovery suggestion

Efficient

- One-click scanning without onsite experts or equipment
- Online I-V curve scanning on entire strings of 5 MW plant within 5min
- Automatic report generation of 5 MW plant within 15min

Network



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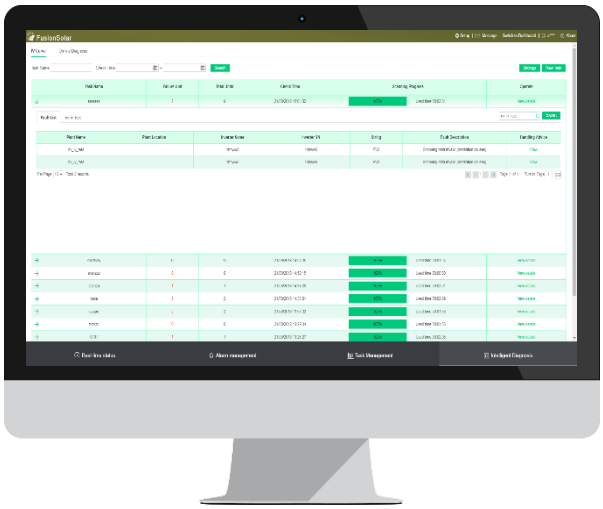

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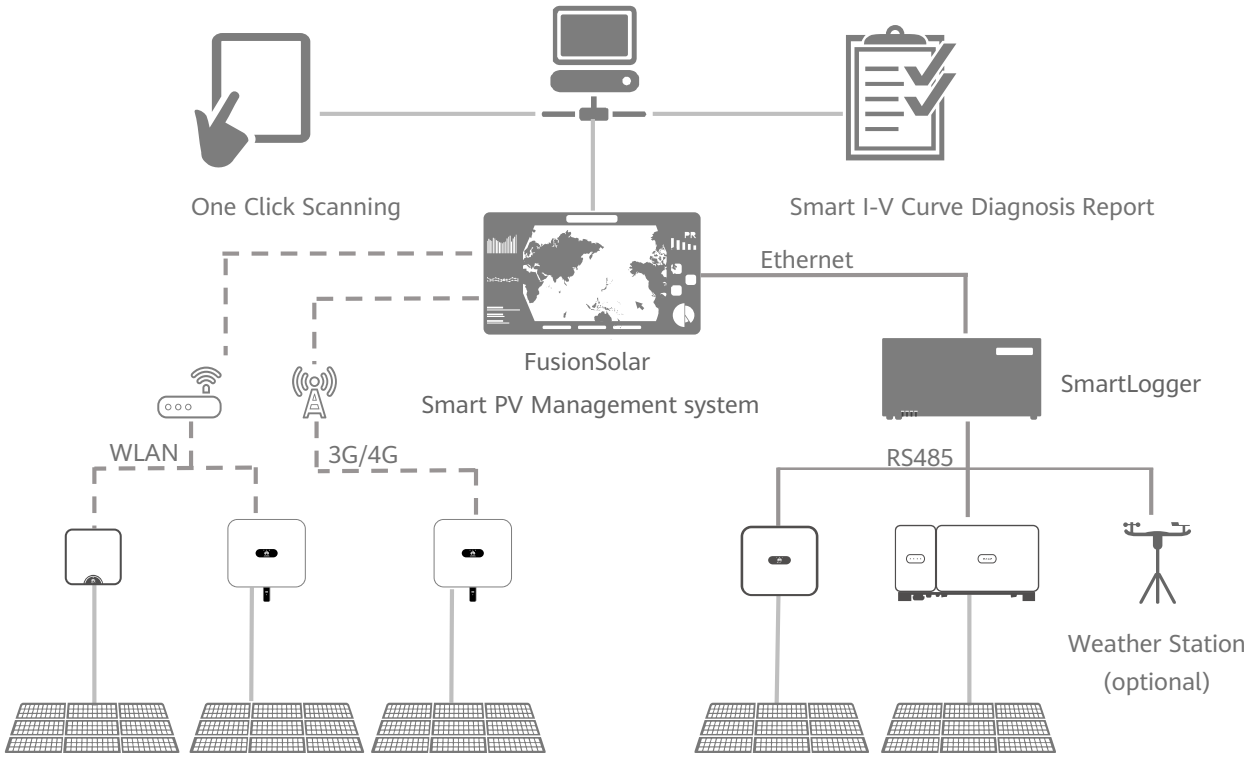


Smart I-V Curve Diagnosis

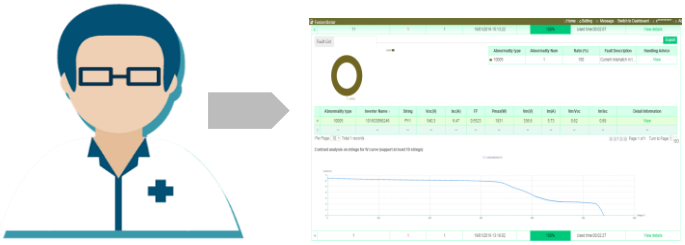
Technical Specifications	Smart I-V Curve Diagnosis
Smart PV Inverter	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1*, SUN2000-3/4/5/6/8/10KTL-M0, SUN2000-12/15/17/20KTL-M0, SUN2000-33KTL-A/36KTL, SUN2000-60KTL-M0, SUN2000-100KTL-M1
Communication	SmartLogger3000A, Smart Dongle-WLAN-FE/4G
Management System	FusionSolar Smart PV Management System, NetEco1000s
Scanning Time	< 1s (1 string)
Sampling Points per I-V Curve	128
Certification	TÜVRheinland® TUV

* I-V curve diagnosis is not supported when inverter is connected with power optimizer.

String-level Management

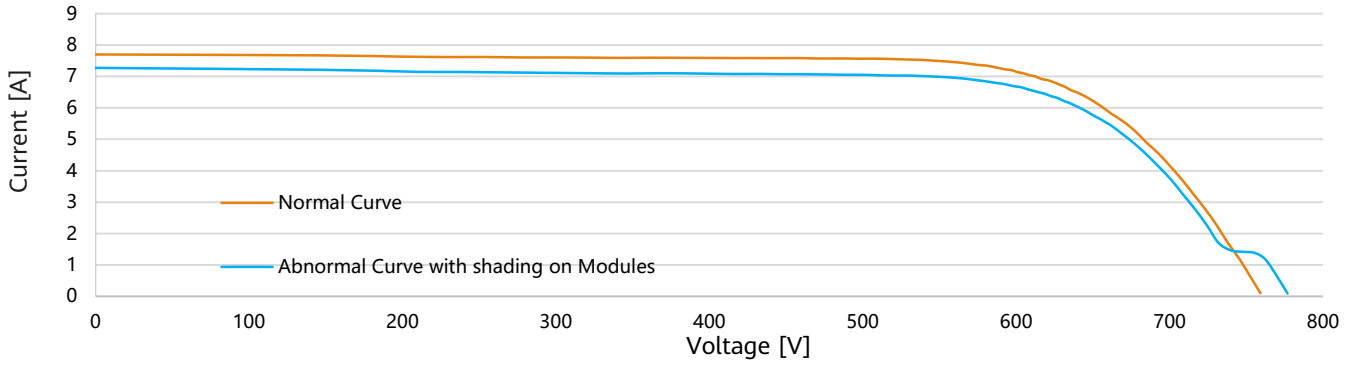
Real time monitoring

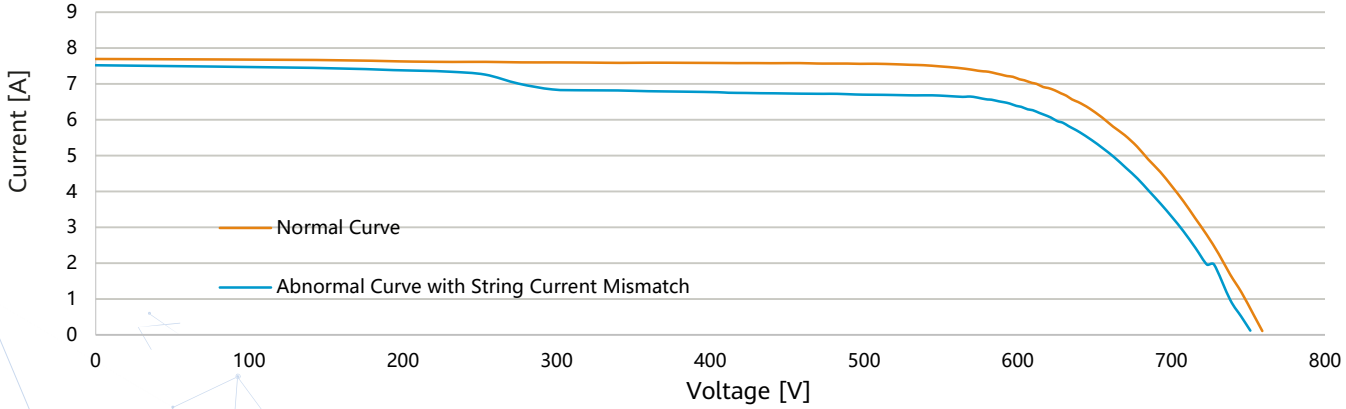
Smart I-V Curve Diagnosis



Fault Analysis

String I-V Curve Comparison





Case Reference

2kW

Residential PV System in Amsterdam, Netherlands

System Configuration

- 6 × 300Wp modules
- 6 × 450W optimizers
- SUN2000L-2KTL-L1

COD
July, 2020

25kW

Residential PV System in Hungary

System Configuration

- 84 × 295Wp modules
- SUN2000-20KTL-M0

COD
May, 2019

Case Reference

8KW

Residential PV System in OOsterzele, Belgium

System Configuration

- 36 × 340Wp Modules
- SUN2000-8KTL-M0

COD
Mar 2016

33kW

Residential PV system in Hanadacho Chokushi, Japan

System Configuration

- 120 × 275Wp modules
- 8 × SUN2000L-4.125KTL-JP
- SmartACBox12in1

COD
April, 2018

Case Reference

85.8KWp

Distributed PV System in Brazil

System Configuration

- 264 x 325Wp modules
- 2 x SUN2000-36KTL

COD
Feb, 2018

2.8MWp

Distributed PV system at Singapore Changi Airport

System Configuration

- SUN2000-36KTL

COD
Dec, 2016

Case Reference

1MWp

Distributed PV System in Kuala Lumpur，Malaysia

System Configuration

- SUN2000-36KTL

COD
Mar 2016

1.25MWp

Distributed PV System in South Africa

System Configuration

- **SUN2000-60KTL**

COD
Sep, 2019

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